

**From:** [Lisa Kusnierz](#)  
**To:** [Kusnierz, Paul](#)  
**Subject:** RE: fish passage  
**Date:** 11/16/2010 03:14 PM

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Hmmm, I guess they did it right then.

Sure, Sunday sounds good. You know I'm usually game for someone else making us food! :)

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▼ "Kusnierz, Paul" ---11/16/2010 02:19:55 PM---I'm pretty sure that it is: slope = (height of culvert bottom at u/s end - height of culvert bottom

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**From:** "Kusnierz, Paul" <[PKusnierz@mt.gov](mailto:PKusnierz@mt.gov)>  
**To:** Lisa Kusnierz/MO/R8/USEPA/US@EPA  
**Date:** 11/16/2010 02:19 PM  
**Subject:** RE: fish passage

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I'm pretty sure that it is:  
slope = (height of culvert bottom at u/s end - height of culvert bottom at d/s end)/distance from end to end

I gleaned this from Fish Xing...

If they measured it differently, like say, based on the elevation of the bottom at the u/s and the elevation of the pool below the culvert, I could see there being issues, especially with perched culverts.

Jon just stopped by and invited us over for smoked beef brisket and football on Sunday (2:00). He said that he'd also invited Steve and Jessie. Interested?

-----Original Message-----  
**From:** [Kusnierz.Lisa@epamail.epa.gov](mailto:Kusnierz.Lisa@epamail.epa.gov)  
[<mailto:Kusnierz.Lisa@epamail.epa.gov>]  
**Sent:** Tuesday, November 16, 2010 1:54 PM  
**To:** Kusnierz, Paul  
**Subject:** fish passage

do you know how slope is usually measured when culverts are assessed?  
all of the culvert assessed in the lower gallatin failed and it's because the slope was too great. i'm wondering if this is typical or if it's partially a byproduct of the way they measured slope.

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